

REMARKS

In the Office Action, the Examiner rejected claims 36-47, 51, 53, 57, 66, 67, 76, 78-86 and 88-91 under 35 USC 102. These rejections are fully traversed below.

Claims 36-39, 41-44, 53, 57, 66, 67, 76, 78, 89 and 90 have been amended. Claims 1-35, 40, 47 and 88 have been cancelled. New claims 92-96 have been added. Thus, claims 36-39, 41-46, 48-87 and 89-96 are pending in the application. Reconsideration of the application is respectfully requested based on the following remarks.

Claim Rejections – 35 USC § 102

Claims 36-47, 53, 57, 66, 67, 76, 78-86 and 88-91 have been rejected under 35 U.S.C. 102(b) as being anticipated by *Gough et al.* (5,863,290).

Claims 36 and 51 have been rejected under 35 U.S.C. 102(a) as being anticipated by *Zepeda et al.* (6,090,105).

Independent Claim 36

In contrast to both *Gough* and *Zepeda*, claim 36 (and its dependents) specifically requires, "...an elongated antenna device electrically coupled to a coaxial transmission line...the coaxial transmission line including an inner conductor, an outer conductor and a dielectric medium disposed between the inner and outer conductors..." Both references fail to disclose a coaxial transmission line, and thus the rejection is unsupported by the art and should be withdrawn.

Also in contrast to both *Gough* and *Zepeda*, claim 36 (and its dependents) specifically requires, "...the antenna device including an antenna that is coupled to a distal end of the inner conductor of the coaxial transmission line and an enclosure that encapsulates the antenna with a dielectric material..." While both references may disclose "microwave antennas", neither of the references teach or suggest a microwave antenna that is coupled to an inner conductor of a coaxial transmission line, and further a microwave antenna that is encapsulated. As should be appreciated, both the primary and secondary antenna 14 and 16 are exposed conductors that have

exterior ablation surfaces. Thus, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to both *Gough* and *Zepeda*, claim 36 (and its dependents) specifically requires, "...wherein upon deployment the antenna device assumes a predetermined position in a direction towards the tissue region targeted for ablation and substantially parallel to the tissue region targeted for ablation." While *Gough* and *Zepeda* may disclose deploying a secondary antenna 16 out of an aperture formed in the primary antenna 14, neither reference teaches or suggests deploying the secondary antenna to a position that places it parallel with the tissue targeted for ablation. The curved antenna simply cannot be parallel with a surface, i.e., there would be portions of the antenna farther from the surface than others (e.g., non parallel). See for example Fig. 1 of *Gough* and Fig. 4 of *Zepeda*. Thus, the rejection is unsupported by the art and should be withdrawn.

Independent Claim 57

Also in contrast to *Gough*, claim 57 (and its dependents) specifically requires, "...a probe configured to penetrate the wall of the beating heart...said probe being configured to penetrate the wall of the beating heart to facilitate placement of the microwave energy delivery portion within an interior cavity of the beating heart, the microwave energy portion being configured to be deployed from the probe when placed within the interior cavity of the beating heart..." *Gough* is completely silent to devices capable of penetrating walls of beating hearts as well as devices capable of ablating portions of beating hearts. Thus, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Gough*, claim 57 (and its dependents) specifically requires, "...the microwave energy portion also being configured the match the shape of the interior portion of the wall and to linearly ablate the interior portion of the wall of the beating heart when deployed within the interior cavity of the beating heart..." While *Gough* may disclose a secondary antenna, *Gough* does not teach or suggest a secondary antenna that matches the shape of the interior portion of an organ or duct let alone a beating heart. *Gough* is also silent to forming linear lesions (e.g., linearly ablate). In *Gough*, the antennas are used to form an ablation volume not linear lesions. See for example Figs. 2, 4 and 5. Furthermore, the curved shape (e.g., J shape) of the antenna in *Gough* would simply not match the shape of the interior portion of the wall of

an organ. As should be appreciated, the curved shape would have portions closer to the wall than others and thus the antenna would not match the shape of the wall. This in of itself would make it difficult to form linear lesions. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Independent Claim 76

Also in contrast to *Gough*, claim 76 (and its dependents) specifically requires, "...a microwave energy delivery means carried by the lumen of the elongated probe and including an antenna device and a coaxial transmission line, the coaxial transmission line including an inner conductor, an outer conductor and a first dielectric medium disposed between the inner and outer conductors, the antenna device including an antenna that is encapsulated by a second dielectric medium and that is coupled to the inner conductor of the coaxial transmission line..." Again, *Gough* fails to disclose a coaxial transmission line as well as an encapsulated antenna, and thus the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Gough*, claim 76 (and its dependents) specifically requires, "...the antenna device and a portion of the outer conductor of the coaxial transmission line being deployed beyond the distal penetration end of the elongated shaft when the distal penetration end of the elongated shaft is positioned within the organ or duct..." *Gough* is silent to coaxial transmission lines and thus outer conductors thereof that are deployed past the distal end of the primary antenna 14. As stated in the specification of the present invention on page 20, lines 8-11, "While not wishing to be bound by theory it is generally believed that the radiated field tends to be more confined along the antenna device 30 when the distal end of the outer conductor 32 is extended in the organ cavity and exposed to the surrounding medium." Accordingly, the rejection is unsupported by the art and should be withdrawn.

Independent Claim 78

Also in contrast to *Gough*, claim 78 (and its dependents) specifically requires, "...wherein said energy delivery portion is formed from a shape memory material that substantially conforms to an inner wall of a heart when positioned through a penetration in a wall of the heart." This particular limitation was moved from dependent claim 88. No new matter was added. While *Gough* may disclose secondary electrode 16 made of shape memory metals

such as NiTi, *Gough* does not teach or suggest a secondary electrode 16 that conforms to an inner wall of an organ or duct let alone a heart. In *Gough*, the curved shape of the secondary antenna would simply not conform to the surface of an inner wall. As such, the device of *Gough* is inadequate for effectively ablating a wall of an organ. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Summary

Applicant believes that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
BEYER WEAVER & THOMAS, LLP

A handwritten signature in black ink, appearing to read "Hoellwarth", with a stylized initial "Q" or "H" to the left.

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